

Tegucigalpa); November 6, 1947, *Williams* and *Molina 13325* (from which the fruit is described); February 20, 1948, *Williams* and *Molina 13701* and *13721*; March 25, 1948, *Williams* and *Molina 13782* (from which the catkins are described).

*Quercus Lowilliamsi* is a member of the series *Acutifoliae* Trel. and is apparently most closely related to *Q. conspersa* Benth. From this polymorphic species the proposed new species is distinguished by its densely tomentose twigs at veneration, its leaves markedly narrowed basally, the blades lacking in glandular puberulence beneath, and its annual fruition. In so large and intricately related a series as the *Acutifoliae*, it is not often that a species so abundantly distinct as *Q. Lowilliamsi* is encountered.

It is a pleasure to name this species in honor of Dr. Louis O. Williams in recognition of his excellent collection of Central American oaks and his generous cooperation in their study.

QUERCUS CONSPERSA Benth., Pl. Hartw. 91. 1842.

This common Guatemalan species has previously been reported from Honduras, Departamento de Tegucigalpa (now Morazán). The specimen here cited from Hoya Grande is atypical in having entire leaves lacking any resinous puberulence on their lower surfaces, a common variation in the species as it occurs in Guatemala. A single such specimen was found.

HONDURAS. Dept. Morazán: tree 15 m. tall, pine-oak forest, altitude 1500 m. near Hoya Grande, August 17, 1947, *Williams* and *Molina 13276*; tree 10 m. tall, altitude 1500 m., lower slopes of Mount Uyuca, February 18, 1948, *Williams* and *Molina 13676*.

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## A NEW SPECIES OF CHENOPODIUM FROM MEXICO

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*Chenopodium pueblense* sp. nov. Herba erecta aliquanto farinosa 3–10 dm. alta e radice fibrata cauli saepe striato foliis pallide viridibus rhomboideo-ovatis vel deltoideis grosse dentatis venis prominentibus supra glabratis infra paulo farinosis apice acutis basi cuneatis 5–8 cm. longis 3–4 cm. latis inferioribus gradatim deciduis, petiolis gracilibus; floribus farinosis in spicis ramosis terminalibus vel in axillis foliorum superiorum glomeratis sepalis carinatis staminibus 5 vel 6 brevibus vix exsertis antheris flavis stylis duobus vel tribus exsertis seminibus sanguineis punctatis turbinato-complanatis. E civitate Puebla, Mexico. Nomine vulgari Cuahzontli.

Erect annual from a small, fibrous root system; stem 3–10 dm. high, sparsely farinose, often striate, the short branches ascend-

ing; leaves alternate, 5–8 cm. long, 3–4 cm. broad (figs. 2a, 2b, 2c), the petioles slender, usually shorter than the blades but often equal, the blades coarsely dentate, pale green, glabrate on the upper, finely farinose on the lower surface, rhombic-ovate to



FIG. 1. *Chenopodium pueblense* Reed: left, inflorescence; right, upper part of mature plants (Photo by D. T. MacDougal).

deltoid, the apex acute, the base cuneate, the lower teeth generally larger, making the blades sub-hastate, the veins prominent, the lower leaves progressively deciduous; leaves of the branchlets small, 1–2.5 cm. long, the margins dentate or repand; seedlings 8–10 cm. high, with leaves 2–3 cm. long, deep green, deltoid, repand, the apex blunt, sparsely farinose (fig. 2e); flowers glomerulate on terminal or axillary, branched spikes, all farinose (figs. 1, 2d); calyx-lobes carinate (fig. 2f) closely investing the fruit, copiously farinose; stamens 5 or 6, short, scarcely exerted, the anthers yellow; styles 2, occasionally 3, exerted (fig. 2f); seeds horizontal, flattened-turbinate, Acajon red (Ridgeway, pl. 13), diameter 1.3 to 1.1 mm., pericarp readily separable, the surface punctate, the elevated margin obtuse (fig. 2g), the embryo completely encircling the endosperm.

Type. Plant cultivated in Berkeley, California, from seed collected by Professor Carl O. Sauer, at Calpán, Puebla, Mexico, alti-

tude 2460 m., *H. S. Reed 2038*, May 6, 1948 (Herb. Univ. Calif. no. 794980).

The species seems not to occur outside of cultivation. Young plants are cooked and eaten as greens, the immature inflorescences, when the seeds are in the "milk" stage (fig. 1), are dipped in egg-

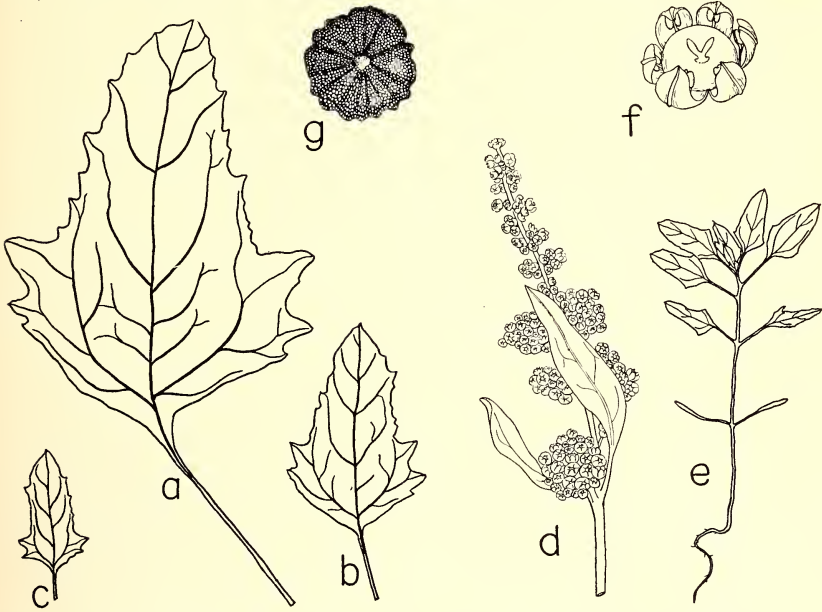


FIG. 2. *Chenopodium pueblense* Reed: *a*, basal leaf of mature plant,  $\times 0.4$ ; *b*, midstem leaf of mature plant,  $\times 0.4$ ; *c*, branchlet leaf of mature stem; *d*, terminal inflorescence showing glomerulate, branched spike; *e*, seedling; *f*, flower; *g*, seed,  $\times 9$ .

batter and fried. The Aztec name *cauhzontli* is apparently derived from *cauhtli* (or *quauhtli*), eagle and *tzontli*, hair of the head.

The vegetative characters of *C. pueblense* have certain resemblances to those of *C. Quinoa*, a plant cultivated for food in parts of South America. The seeds of the latter species however, are ivory white and larger than those of the former. The Aztec name it bears is strong evidence, moreover, that *C. pueblense* is indigenous to Mexico.

In 1947, Dr. D. T. MacDougal carried out several tests on the rate of swelling and germination of seed which had been grown in his garden at Carmel in the previous summer. The seeds, which had been stored for a few weeks at room temperature, germinated rapidly when placed on pieces of porous tile in a warm moist chamber. The red color of the seeds disappears during the early stages of germination. At the time of emergence of the cotyledons, the seed coats have lost all of the red color.

In an experiment which is typical of many others, 194 seeds were placed in a moist chamber at 32° C. One seed had germinated in four hours, 50 seeds in eight hours, and the entire lot in 48 hours. The importance of this power of rapid germination can be appreciated when one realizes that, in its habitat, rain falls in showers (often torrential) of a few hours' duration. If the seeds are on the ground where they can absorb water, they could germinate quickly and get established before the ground became too dry for successful growth.

A sample of seeds which Dr. D. T. MacDougal planted in 1946 at Carmel, California, produced numerous plants which matured seed. The following spring he planted some of the 1946 crop of seeds in his garden and produced a second crop. Among these plants was one which attained a height of 3.34 m. (10 feet, 11 inches). The chromosomes in seedlings derived from this plant were  $2n = 36$ . I owe the determination to Dr. J. A. Jenkins. The plant appears to be a tetraploid.

I wish to express my gratitude to Mr. Charles L. Babcock who prepared the Latin description of the species.

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## TAXONOMY AND EVOLUTION OF VASEYANTHUS

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*Vaseyanthus* is a small genus in the Cucurbitaceae endemic to the arid and semiarid California Gulf Region of northwestern Mexico. It is generically characterized by the conic ovary of one to three cells, one or two of which commonly abort to leave a one-seeded fruit. The androecium and the few, erect to ascending, ovules place *Vaseyanthus* in the tribe Sicyoideae as outlined by Cogniaux (1916, p. 1). The closest relation is with *Echinopepon* Naudin (1865, p. 17), by reason of the several-celled ovary with erect to ascending ovules, rather than with *Brandegea* Cogn. (1890) and *Sicyos* L. (1753, p. 1013), both of which have single-celled ovaries with one pendulous reflexed ovule. The genera *Marah* Kell. (1854) and *Echinocystis* Torr. & Gray (1840, p. 542), although usually thought of as being associated with this group of genera, appear not to be closely related because of their highly flexuous anthers of reduced number, hypogeous germination, and large round seeds. Generically *Vaseyanthus* is separated from its nearest relative, *Echinopepon*, by the globose body of the fruits with thick, indurate, vesicular pericarps, the reduced number of cells and ovules, and a strong tendency towards reduction in the number of stamens. This genus, as represented by four entities, exhibits a relatively mild state of specific development.